insertion in 'The Ibis,' together with some brief notes which Mrs. Hinderer was so good as to attach to the specimens, and which include the native names of each species. The town of Ibadan is in latitude 7° 40′ North, and longitude 4° 10′ East, or thereabouts, and lies about fifty miles inland from the Bight of Benin.

1. POLYBOROIDES RADIATUS (Scop.). "*Asharo.* Eyes bright purple, light yellow rim."

2. BUCEROS ELATUS (Temm.). "*Agbigbo.* Eyes black; feeds upon fruit, especially a kind of plum; is so strong, it can fight and conquer any bird."

3. BUCEROS FASCIATUS (Shaw). "*Atioro.* Eyes coal-black; feeds on fruit."

4. ISPIDINA PICTA (Bodd.). "*Opere.* Feeds upon flies."

5. POGONIAS BIDENTATUS (Shaw). "*Akoko.* So called from its cry. Eyes purple."

6. CENTROPUS SENEGALENSIS (Linn.). "*Elulu.* Eyes red, with yellow ring."

7. ARDEA ATRICOLLIS (Wagl.). "*Ako.* Eyes deep purple; feeds on snakes and lizards."

8. ARDEA BUBULCUS (Savigny). "*Leke-leke.* Eyes black, with very light yellow rim."

9. THRESCIORNIS RELIGIOSA (Savigny). "*Yenja-yenja.* Eyes deep purple; feeds upon fish, frogs, and anything it can get out of the water."

10. RHYNCHÆA CAPENSIS (Linn.). "*Eyedo.* A bird of the brooks; feeds upon little fishes and anything it can find by the water's edge."

Catton Hall, Norfolk.

XVI.—*On the Ornithology of Northern Africa.*

By the Rev. H. B. TRISTRAM, F.L.S. (Part I.)

IT is impossible to gain a just view of the ornithology of any country without considering in the first place its physical and geological characters. This is peculiarly the case with respect to Northern Africa strictly so called, *i. e.* the Barbary States—the 'Mogreb' of the Arabs—extending from the Gulf of Cabes, south-east of Tunis, to the bold headland in which the western Atlas range abruptly terminates on the Atlantic coast of Morocco. If we cast our eyes on the map of Africa, we shall see no portion of the globe apparently so compact, so self-contained. A peninsula, attached only to Asia by a narrow isthmus, Africa exhibits no islands like those which encircle Europe, struggling, as it were, to be freed from the continent. No deep gulfs and bays indent her shores. Compact and solid, the geological convulsions which have dislocated Europe have met with an impenetrable barrier in the ridge of the Atlas, which has sternly repelled every encroachment. We might naturally expect then to find the Fauna and Flora of Africa throughout characteristic and homogeneous, or, at most, varied only by the effects of climate and latitude, like those of Asia and America.

But when we examine more closely the physical geography of Africa, we shall find that, so far from this being the case, the natural history of the Atlas bears scarcely any affinity to that of the rest of the continent, and that this distinctiveness may be at once traced to natural physical causes. To the naturalist, North Africa is but a European island, separated, it is true, from Europe by the Mediterranean, but far more effectually isolated from Central Africa by that sea of sand, the Sahara. The Atlantic isolates it on the west, while a comparatively narrow, but most impenetrable desert of ever-shifting sand cuts it off from Tripoli and Egypt, which on their part seem to bear rather on Asia than Africa. No link attaches Barbary to the rest of the continent, no river supplies an arterial communication, not the most insignificant streamlet forms either a bond of union or a frontier line; the long Atlas chain abruptly terminates in Tunis, and sends not one solitary spur towards Africa; it rather seems by one of its branches to claim kindred with Europe. So far the Arab geographers are accurate in coupling 'Mogreb' with Europe instead of Africa. They, too, have the tradition mentioned by Livy, Pliny, and Seneca, that Spain and Morocco were once united,—an idea which must so naturally suggest itself to any one who has sailed through the Straits of Gibraltar, that it is needless to imagine that it had any foundation in historic memory. If we might here hazard a conjecture, it would be that the same convulsions and upheavals*, which at the close of the tertiary epoch indented the southern coasts of Europe, at the same time drained the ocean, which up to that time had rolled over the plains of the Sahara, and submerged the low-lying lands which probably united the Canaries and Madeira to the main land. The natural history of these islands is so essentially European as to point to an identical centre of creation. We may then imagine that towards the close of the later geological epoch, Barbary was a vast peninsula linked to Europe by Gibraltar, and washed on the south by the ocean of the Sahara, on the north by the inland lake which is now the Mediterranean.

It is to be observed, also, that the geological character at once changes, when, leaving the southern slopes, we enter the Sahara. Upon the surface of the tertiary deposits and nummulitic limestone we come to masses of granite, quartz, and other igneous formations, with numerous rounded pebbles and large gravel, bearing all the marks of an ancient sea-bed, besides the extraordinary mountains of pure rock-salt, which in various places rise suddenly from the limestone. During my rambles in the Sahara the only *true* fossils I found were of a species of *Chama*, imbedded in the cliffs, though abundant fragments of tertiary shells lie scattered among the sands.

Such being the physical geography of North Africa, we need not be surprised at finding its Flora and Fauna closely approximating to those of Europe, *i. e.* if we take, as the limits of Barbary, the foot of the southern slopes of the Atlas. Towards the end of the last century Desfontaines carefully explored its Flora, and described it in his well-known work 'Flora Atlantica.' The additions made by Mr. Munby and others, subsequently, have raised the list of Desfontaines to about 2000 indigenous species. Among these I can scarcely find a single genus which is not represented in the Flora of Spain, Sardinia, or Sicily, with the exception of the *Cactus* and *Agave*, manifestly American introductions. The most characteristic plant, *Chamærops nana*, abounds in Sardinia. Turning southwards to the Flora of the Sahara, I have catalogued 335 genera and upwards of 600 species, one-third of which are unrepresented in Europe, but represented by identical or closely-allied species in Egypt or Arabia.

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* I once found on the Barbary coast a raised tract composed of masses of tertiary shells, 250 feet above the present Mediterranean level.

But when we turn to the mammals, a singular contrast presents itself, and it seems scarcely possible to connect these with the European centre of creation.

I cannot help expressing my thorough agreement with the remark made by the able reviewer of Bree's "Birds of Europe," in the 1st No. of 'The Ibis,' with all due deference to our learned Editor's opinion in the foot-note:—"We believe the Algerian mammals and reptiles are entirely distinct from those of the opposite coast." I have before me my friend Capt. Loche's 'Catalogue des Mammifères de l'Algérie,' which I have verified by examination of the specimens in the Algerian Museum. He gives a list of 75 mammals, to which I am able to add four. Of these, 21 are common to Europe; but of these 21 a close scrutiny will enable us to eliminate several. *Pithecus innuus* can only be deemed a straggler in Europe; for this monkey is confined to Gibraltar, and must have reached that rock from the opposite shore, or perhaps have been introduced. *Canis aureus* (the Jackal), though certainly now European, has, historically, I believe, been introduced across the Dardanelles. *Mus decumanus* (the Norway Rat) is confessedly not indigenous. *Dama vulgaris* is given by Capt. Loche; but other authorities maintain that the Algerian *Dama* is specifically distinct.

Of seven bats given by Capt. Loche, six are supposed to be identical with European species. But I believe that I possess three other non-European species; and when the whole series has been examined by Mr. Tomes, and further researches made by the only living naturalist capable of giving a decided opinion, it seems probable that the Atlas will be found to possess its characteristic *Vespertiliones*. Still, when we remember the power of flight these creatures can exercise on an emergency, and that stragglers of various North American species have frequently reached the Bermudas—a distance of 800 miles,—it is not to be wondered at if European colonists of this class should have preceded even the French adventurers.

What mammals then do we find really common to the opposite shores of the Mediterranean? Only the following:—*Felis catus* (Wild Cat), *Putorius boccamela, Lutra vulgaris* (the Otter), *Sus scrofa* (Wild Boar, world-wide in its distribution), *Sorex araneus* and *S. fodiens, Mus rattus, M. sylvaticus, M. musculus, Hystrix cristata,* and *Lepus mediterraneus*—eleven in all. It is to be observed, that no mole mines, no badger skulks, no wolf roams in Barbary, while there are seventeen carnivorous animals, and among them the Lion and the Leopard, which roar within hearing of the coasts of the Mediterranean, and yet have no congeners in Europe. As far as I have been able to ascertain, the forms of reptilian life are as distinct from those of Europe and as closely united with the African types as the mammiferous races; but I am not aware that the collections made by le Capitaine Dastugue, by myself, and others, have yet been submitted to the scrutiny of herpetologists, and the specimens which have been hitherto reported on in Paris have been chiefly collected *only* on the coasts. How the singular contrast between the mammalian dissimilarity and the general zoological similarity is to be explained, remains to be unfolded by the coming 'Philosophic Naturalist,' foretold by Mr. Bree's Reviewer above alluded to. Unless the progenitors of the carnivores can have crossed the Great Desert from the south, which in its present state I should conceive scarcely possible, I dare offer no conjecture.

But when we come to the ornithology of North Africa, then it is that the zoological union with Europe is most complete. The first work with which I am acquainted on the Algerian birds is the brochure of M. Alfr. Malherbe, published at Metz in 1846. Of the 191 species in this catalogue, 186 are common to Europe; one (*Cuculus abyssinicus*) is incorrectly inserted, and four are distinct species—*Pica mauritanica,* described by M. Malherbe in 1843; *Parus ledouci,* Malh. 1842; *Parus cæruleanus,* Malh. 1842; and *Picus numidicus,* Malh. 1842. This latter has since, it is said, been found to inhabit Spain.

M. Malherbe published an appendix to his Paper in 1847, containing four more non-European species—*Aquila rapax, Aquila nævioïdes, Falco punicus,* and *Caprimulgus isabellinus.* With the exception of the diagnoses, M. Malherbe's work is a mere catalogue, with a few notes, which, as they are compiled by one who never visited the country, are very incorrect as to the localities and comparative rareness and abundance of species.

That our knowledge of Algerian birds has advanced since 1846, the catalogue of Capt. Loche, published last year, and containing 357 species, is a sufficient proof. Yet of this number (rivalling the portentous roll of the 'Zoologist' list of "birds observed in Britain," though guiltless of Asiatic Grakles and Australian Spine-tailed Swifts), there are but 42 non-European species, including the 8 previously described by Malherbe. Besides these, Capt. Loche gives a supplemental list of species said to be Algerian, but which he has not met with himself. Of these I succeeded, in 1856, in obtaining three, viz. *Sylvia philomela, Sylvia sarda,* and *Sylvia olivetorum.* The 1st No. of 'The Ibis' contains diagnoses of 9 species brought by me from the Sahara, supposed to be hitherto undescribed; and I may add also 2 species, first obtained by me in Algeria in 1856, but described by M. Brehm in Oct. 1858, in "Naumannia," from Abyssinian specimens, as *Dromolea leucopygia* and *Dromolea leucocephala.* Thus our latest ornithological knowledge gives us 371 Algerian species, of which 53 are not known to have occurred in Europe. But even this list, on a careful analysis, must be enormously reduced. For what are the natural limits of North Africa? Surely the northern fringe of the Great Desert, incorrectly termed by us the Sahara. French conquest and French alliances have, it is true, included a vast desert territory politically in Algeria, though a great portion of this is only nominally dependent, and knows no more of French jurisdiction than two hasty visits of flying columns of cavalry could impart. The Touariks profess to be allies of the Emperor, and the 'Moniteur' once announced that the tricolor is now respected up to the walls of Timbuctoo. No tricolor, however, has yet been adventurous enough to invoke any outward mark of respect in these regions, and the birds seem as little inclined for assimilation as the wingless roamers over these wastes.

If, then, we assume North Africa to terminate where the last traces of vegetation disappear in the desert, we shall find but 14 Algerian non-European species recorded. These are—

Aquila nævioïdes.
Buteo tachardus.
Falco punicus.
Hypotriorchis concolor.
Pica mauritanica.
Garrulus cervicalis.
Fringilla spodiogenia.
Ruticilla moussieri.
Chloropeta pallida.
Parus ultramarinus.
Parus ledouci.
Lanius algeriensis.
Gecinus vaillantii.
Picus numidicus.
Microcarbo algeriensis.

Of these, *Falco punicus* is said to have gained a claim to the European list, having been shot in Malta by Col. H. M. Drummond. *Picus numidicus* there seems fair authority for believing to occur not unfrequently in the cork forests of Andalusia. *Fringilla spodiogenia* can scarcely be considered as more than a local, but constant, variety of *Fr. cœlebs*. *Lanius algeriensis* is, if not identical, at least closely allied to *L. meridionalis*. *Gecinus vaillantii* differs very slightly from our common *Gecinus viridis*, and may be only a local variety. *Microcarbo algeriensis* is hardly to be distinguished from *Microcarbo pygmæus*; and *Chloropeta pallida*, a species recognized by Prince Bonaparte, with all due deference to so great an authority, seems to me to be separated for no solid reason from the *Sylvia elaica* of Temminck. Prince Bonaparte makes the difference to consist only in its smaller size, but I have obtained specimens fully equalling the recorded measurements of *S. elaica*; and I cannot help believing that a more careful examination will eliminate this species, as it has *Sylvia familiaris*, now admitted to be identical with *Sylvia galactotes*. *Hypotriorchis concolor* is given by Captain Loche as occurring in the province of Constantine, but no specimen exists in the Algerian collection. Captain Loche has never seen one himself; and as *Falco eleonoræ* is not uncommon there, it seems most probable that this bird, in its fine uniform black plumage, has done duty with some French collector for *F. concolor*.

There remain then but 7 species undoubtedly and peculiarly North African; and these, with the very interesting exceptions of *Aquila nævioïdes* and the exquisite little *Ruticilla moussieri*, all have closely allied European cousins, whose place they supply in the Algerian economy. Is it too much to affirm that there is not a district in Europe of equal extent which does not present at least as great a number of peculiar forms? It is fair to admit that some of the habitual denizens of Algeria obtain a place in the European catalogues on questionable authority, or rather, I should say, from the occurrence of some too restless wanderer far from his native haunts, as, e. g., *Elanus melanopterus*. Little wot these foolish stragglers of the destruction they bring upon their race by the transgression of Nature's limits! Once out of bounds, and caught on European soil, they are noted in the price catalogue of every 'marchand des oiseaux' throughout the Continent; and their skins and eggs are indispensable to the drawers and cabinets of German and French collectors. As in England the science of natural history is disgraced by pretenders and their abettors, who have the unmanly nerve to draw the trigger against the last Eagle of a district, to sneak for days in ambush against a Hoopoe, or desolate the last resting-place of some historic Peregrines, so the catalogues of Paris, of Copenhagen, and of Hamburg tell too plainly of the efforts made for the most sordid purposes to swell the list of European species*.

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* I may remark, in passing, that the French dealers appear to consider Algeria as, ornithologically, a province of Southern Spain. I have been amused by the rich stores they can produce of birds and eggs from *Andalusia*, which, though very scarce there, are abundant in the more accessible Algeria. In one shop in Paris I saw some very fine eggs of *Gypaëtus*, which I was assured had been taken in the Pyrenees, but which had upon them the private mark of a certain Algerian collector with whom I was well acquainted. Skins of *Ixos obscurus*, &c., all labelled from the south of Spain, bore a most remarkable resemblance to the (to me) familiar preparations of this gentleman, whom I had assisted in packing a box for Paris.

In the summer of 1856 I was in the habit of employing the boat and local knowledge of a professional chasseur on an Algerian lake. This man used to send boxes of eggs to another Paris dealer. His collections were never named, for he knew only the provincial appellations of the birds. I

When from the denizens of the Tell, or Barbary Proper, we direct our attention to the inhabitants of the Desert and its oases, a very different result rewards our investigation. Here, out of a much more limited Fauna, we find no less than 38 species whose wings have never borne them across the Mediterranean. Unwonted and often uncouth forms meet us with scientific names to match (like *Rhamphocoris clotbey*), most

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was particularly anxious to find the nest of *Anas rufina*. He told me he had frequently taken the eggs, and had sent as many as forty of 'le Grand Siffleur Huppé' to Paris, receiving three francs a piece. He showed me some he had, which bore a striking resemblance to those of *A. nyroca* (a very unmistakeable egg for a duck), which was abundant on the lake; while of *Anas rufina* we never saw but one pair. I assured him of his mistake; but he was positive, and showed me a letter desiring him to send more of this said 'Grand Siffleur Huppé!' At length one day, as I was with him in his boat, a duck rose from its nest; he fired, and brought down an *Anas rufina*; and I found one egg in the nest, of the lovely pale green characteristic of this bird. I exhibited it triumphantly. He turned away in disgust, exclaiming, "Eh bien, c'est une variété extraordinaire!" Soon afterwards I saw eggs of *Anas nyroca* in Paris marked as *rufina*; and within the last year I have been amused at finding an exactly similar egg doing duty for the whistling duck in three British collections; not, however, from Paris, but with inscriptions which told me that at one period of their existence—whether at that of their transmutation or not I cannot say—they had visited Copenhagen.

My last adventure with the chasseur was ludicrous enough. He had offered me eleven eggs of the Golden Eagle, which he said he got from the Arabs, for 100 francs. I wrote to say that if he would bring the eggs, he should have the money. In a few days he accordingly appeared at my house with a clean-looking sitting of eleven eggs of *Meleagris gallopavo*, var. *domestica*. I indignantly dismissed him for an impudent rogue, and in a few days received a summons to appear in court for breach of contract. My chasseur, his turkey eggs, and his *avocat* were there in due state. The *avocat* produced my letter desiring him to bring 'les œufs,' and he should have his money. The chasseur swore that these were the eggs alluded to, and moreover that they were those of 'l'Aigle Royal,' not of 'le Dindon.' I affirmed the contrary. But when doctors differ, who shall decide? And M. le Juge decided that, as a chasseur, who had been all his life among birds, was more likely to know an Eagle's egg than an amateur, though certainly they did look to him very like turkey's, I ought to believe the chasseur and take the eggs. On my declaration of an appeal, the prosecutor proposed to settle the affair out of court, which he did by fair promises and allowing 50 francs for boat hire. He has since transferred his genius to poultry-dealing in Kabylia.

of them clad with quaker-like simplicity in inconspicuous drab, with bills and tarsi often apparently distorted or exaggerated, but wonderfully adapted by their all-wise Creator to supply the means of sustenance in these arid regions. We find here the order *Struthiones*; the genera *Otogyps, Crateropus, Drymoica, Comatibis, Corospiza, Rhamphocoris,* unknown to Europe; and others, as *Erythrospiza, Dromolæa, Ammomanes, Pterocles,* rarely represented here, but universally distributed there, and under many specific varieties. From the difference of climate and physical geography, this was naturally to be anticipated. It is only mentioned to prove the premises with which we commenced, viz. that, ornithologically, North Africa is a European province, while the Sahara is as decidedly non-European, its affinities being with Nubia and Abyssinia.

XVII.—*Remarks on the Harlequin Duck* (Histrionicus torquatus, *Bp.*). By Alfred Newton, M.A., F.L.S.

The value of the characters afforded by the trachea in different members of the *Anatidæ* is so well known, that I make no apology for presenting the readers of this Journal with figures of that organ in a remarkably interesting species, the Harlequin Duck (*Anas histrionica,* L.; *Histrionicus torquatus,* Bp.). Of this